

RECORDS AND DESCRIPTIONS OF ORTHOPTERA FROM S. W. ASIA

BY

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(With 2 text figures.)

Our knowledge of the Orthopteran fauna of the vast deserts of S. W. Asia (Persia, Mesopotamia, Arabia, Baluchistan, Afghanistan, N. W. India) is, so far, extremely fragmentary, this particular group of insects not being usually favoured by collectors. At the same time, each lot of Orthoptera brought home from there, however small and accidentally collected it may be, gives the strongest proof of the great richness and originality of that fauna. Endeavouring to collect as full records of species, inhabiting the Asiatic deserts, and of their geographical distribution, as it is possible, I have recently worked out all the odd specimens from Arabia, Baluchistan, Afghanistan, Persia and Syria in the British and Paris Museum collections; a small collection sent by the Bombay Natural History Society, containing the specimens taken by Lt.-Col. J. E. B. Hotson in Baluchistan, Capt. G. C. Shortridge, Lt.-Col. F. P. Connor and Lt.-Col. H. D. Peile in Mesopotamia, and by Mr. Peter Paschen in Persia (the latter lot received by the Society through Colonel P. Gough) has also been identified by me and several new forms described in the present paper. The total number of specimens studied in preparing this paper scarcely exceeds two hundred and the proportion of new species and even genera is simply astonishing. I hope that this fact will encourage all entomologists, who have the opportunity of collecting in those countries to pay more attention to a class of insects usually ignored and regarded as "uninteresting" viz.:—Grasshoppers, Katydid, Crickets and other members of the order Orthoptera; the writer will be very pleased to examine and work out all collections of Orthoptera from the Desert regions in Asia, however small and casually made they may be.* The types of new forms, described in this paper, are in the British Museum.

*Mantide.*1. *EREMIAPHILA LEVIFRONS*, sp. n.

♀: Head as broad, as pronotum; facial clypeus distinctly convex, without any trace of upper carina, smooth, sparsely impresso-punctate; ocellar area scarcely concave; transverse furrow delimitating this area from vertex feebly developed; vertex smooth, with lateral furrows distinct, but shallow, while the intermediate furrows are scarcely developed. Pronotum as broad anteriorly as it is long; distinctly narrowed posteriorly; fore margin convex in the middle, bisinuate laterally; lateral margins distinctly convex; hind margin convex; fore and hind angles a little more than 90°, acute; upper surface smooth with a transverse oval gibbosity at the fore margin and two smaller gibbosities posteriorly. Elytra distinctly coriaceous, with raised veins, longer than broad, widely rounded anteriorly and at the apex, with hind margin almost straight, slightly excavate beyond the middle. Wings broader than long, with hind angle acute, rounded apically. Fore femora and tibiæ armed with four spines outwardly.

General colouration clay yellow. Head and underside whitish. Elytra beneath with a subapical oblique transverse blue-black band, not reaching the fore margin, and with a not sharply defined dark border; both the band and the

* Collections may be sent directly to the author (British Museum [Natural History] Cromwell Road, London, S.W.7.) or through the Bombay Natural History Society. If any particulars as to the best methods of collecting and preservation are wanted the author will be glad to answer enquiries.

dark border are well visible on the upside of elytra, as well. Wings unicolorous brownish, with lighter border. Legs whitish beneath and clay-grey, with scarcely perceptible transverse bands on the upper side.

	♀ (type).	♂ (paratype).
Length of body	32,5 mm.	23,5 mm.
Length of pronotum	6, 5	5
Width of .. anteriorly	6, 5	5, 5
.. .. posteriorly	5	4
Length of elytra	13, 5	11
Width of elytra	8	7
Length of fore femora	7	6, 5
.. .. tibiæ	4	3, 5
.. .. hind femora	14	13

One female and two males, taken at Muscat, Arabia, by the late Lt.-Col. A. S. G. Jayakar (British Museum).

There is only one more known species of this genus, in which the spot on the elytra is visible from above; this is the *E. persica* Wern., which is easily distinguished from the new species by the form of pronotal angles and by the structure of the head, as well as by the far smaller dimensions.

2. TARACHODES ARABICUS, n. sp.

♂. Rather small for the genus. Antennæ about twice as long as head and pronotum together. Head broader than pronotum; facial clypeus transverse, entirely flat, its angles rounded, upper carina feeble and not reaching the sides; occiput with two furrows nearest to the eyes rather well developed, while the two intermediate ones are scarcely perceptible. Pronotum about twice as long as it is broad in its widest part which is before its middle, but distinctly behind the transverse sulcus; sides of pronotum parallel, with a feeble excavation before the dilated part and slightly convergent behind it; marginal expansion narrow in prozona and rather broad in metazona, narrowing gradually towards the base of pronotum; transverse sulcus placed near the base of the apical third, its middle part is very feebly developed, while the lateral parts are deeply impressed and strongly curved forwards, with extreme ends almost parallel to pronotal margins; metazona with an oval gibbosity in its fore part; middle sulcus scarcely perceptible, very shallow near the apex and base of prozona, as well as on the fore part of metazona, being entirely undeveloped on the whole basal half of the latter. Elytra longer than the abdomen, subparallel, with apex lanceolate. Wings distinctly shorter than elytra, with apical lobe markedly separated from the rest by an emargination.

General coloration pale greyish. Facial clypeus with a transverse band, upper and lower margins black. Inner side of fore legs rufous, without any black marks. Prosternum with a black transverse band near its base and brownish near the base of fore legs. Elytra entirely hyalinous, veins greyish, with only a few small brownish stripes along veins. Wings hyalinous, with cells of the hind part very feebly infumated.

	♂ (type).	♀ (paratype).
Length of body	32 mm.	34 mm.
Width of head	5	? (mutilated).
Length of pronotum	7, 5	9
.. .. metazona	5	6
Width of pronotal dilatation	3, 5	4
Length of fore coxæ	5	6
.. .. femora	6	6, 5
.. .. tibiæ	4	5
.. .. elytra	26	7, 5

	♀ (type.)	♂ (paratype.)
Length of wings	23	?
„ hind femora	7, 5	7, 5
„ hind tibiæ	7	7

The paratyptic female differs from male by the broader pronotum, armed with two tubercules, with margins strongly denticulate; by short elytra and by darker general coloration, with well pronounced grey bands on the legs; inner spines of the fore tibiæ are in female entirely black.

Two males and one female in British Museum from Ktubu, Arabia, G. W. Bury.

This species is easily distinguished from all previously known by the coloration of the inside of fore legs and prosternum; these characters seem to be very constant and quite suitable for separating species in this genus.

The new species is the first Asiatic representative of the genus *Tarachodes*, all others being known from Africa.

3. *STATILIA OCELLATA*, sp. n.

♀: Closely resembles *St. haani*, Sauss., but differs distinctly by the following characters: pronotum with more elongate prozona; pronotal dilatation narrower; prosternum with two whitish ocellar spots, encircled by black; fore coxæ armed with seven spines; elytra extending well beyond apex of abdomen.

Length of body	50 mm.
„ pronotum	18
„ metazona	13, 5
Maximal width of pronotum	4
Length of fore coxæ	12
„ „ femora	15
„ „ tibiæ	4, 5
„ hind femora	17.
„ „ tibiæ	15, 5
„ elytra	39

One female in British Museum from Quetta, Baluchistan (received in 1889 from the Karachi Museum).

4. *FISCHERIA INERMIS*, sp. n.

♂: Smaller and more slender than any known species. Antennæ very long, setaceous. Head less than twice as broad as pronotal dilatation; facial clypeus transverse, with apex rotundate; occiput convex with two lateral furrows more deeply impressed than two intermediate ones, which are quite shallow; eyes thick, hemispherical. Pronotum slender; its sides slightly expanded, with a few marginal granules in prozona, but without spines and parallel in prozona and in the middle part of metazona, slightly diverging backwards; fore margin elliptical; coxal dilatation placed just behind transverse sulcus; its width is about one-half as much again as the width of pronotum in its narrowest part, which is about the middle of metazona; metazona twice as long, as prozona; median carina placed in a shallow longitudinal sulcus, very feeble in prozona, scarcely perceptible in the fore third of metazona and entirely disappearing in the hind part of the latter. Elytra extending beyond the apex of abdomen. Wings but a little shorter than elytra. Fore coxæ a little longer than metazona of pronotum, not granulated, armed with 6-7 feeble erected spines along the upper carina; fore femora smooth, their armature, as well as that of fore tibiæ presenting no difference from other species of the genus. Hind metatarsus armed with but scarcely perceptible spinules, closely lying down to metatarsus. Supra anal plate a little longer than its base wide, acutely triangular, with apex rounded, lateral margins feebly but distinctly concave, median keel developed in the middle part only. Cerci rounded, rather thick, distinctly longer than supra anal plate. Subgenital plate with its apex triangularly emarginated between short styli.

General coloration grey. Fore coxæ unicolorous, fore femora with three darker coloured bands on the upper side. Pronotum unicolorous, darker than elytra. Elytra with a whitish border along the fore margin of the costal area, interrupted by irregular brownish spots; bases of radial veins pale; a somewhat darker not sharply defined transverse spot in the basal third, followed by a whitish area; the second, larger and more defined whitish spot before the apex, followed by a smaller dark spot; veins darker than cellules, and the whole surface appears, therefore, slightly marmorated; anal area brownish-violaceous, but not so dark as in other species, the colour fading backwards. Wings rather equally infumate throughout the whole surface, the basal part being scarcely more hyaline; transverse venules pale; apex with a common, for this genus white spot, encircled by brownish-violaceous colour.

Length of body	40 mm.
Width of head	5
Length of pronotum	9,5
" metazona	6,5
Maximal width of pronotum	3,25
Minimal " " "	2
Length of fore coxæ	7
" " " femora	9
" " " elytra	30
" " " wings	27
" " " hind femora	13
" " " " tibiæ	14
" " " " metatarsi	4,5

The type is unique; it has been taken by G. W. Bury at El-Kubar, S. W. Arabia (British Museum collection).

This new species is easily recognised by its small size, very feebly armed hind metatarsus, not denticulated pronotum and the shape of supraanal plate.

5. FISCHERIA SYRIACA, Sauss.

1871. *Fischeria bœtica*, Ramb. var. *syriaca*, Saussure, Mém. Soc. Phys. Genève, xxi, p. 109.

1915. *Fischeria festæ*, Giglio-Tos., Bull. Soc. Entom. Ital., xlvii, p. 22.

Giglio-Tos, in description of his *F. festæ* gives exactly the same differences of it from *F. bœtica*, as Saussure gives for var. *syriaca*; both being of the same origin, it is obvious that they are identical. The same species (or only subspecies of *bœtica*, Ramb.), and not the typical *bœtica*, Ramb., populates all desert parts of S.W. and Central Asia, and all previous records of *bœtica* from those countries must be undoubtedly credited to *syriaca*.

Male of *syriaca*, of which only female has been described by Saussure and Giglio-Tos, differs well from *bœtica* by its larger dimensions, and especially by longer elytra which extend well beyond the apex of abdomen; wings are scarcely shorter than elytra. Dimensions of a male from Mesopotamia are, as follows:—

Length of body	72mm.
Width of head	7, 5
Length of pronotum	18
" metazona	12
Maximal width of pronotum	5, 5
Minimal " " "	3
Length of fore coxæ	13
" " " femora	17, 5
" " " hind "	21
" " " " tibiæ	25
" " " " metatarsus	6, 5
" " " " clytra	48

The specimens studied are from the following localities: Kut and Amara in Mesopotamia; Bushire in S. W. Persia; Aleppo, Syria (in British Museum and in Bombay N. H. Society).

6. *MICROTHERSPIS DMITRIEVI*, Wern.

One male in British Museum from Bushire, S. W. Persia. The species has been described (Ann. Mus. Zool. Petersb., xiii, 1908, p. 120) from Djibouti and Harrar on the Somali Coast.

7. *IRIS PERSA*, sp. n.

♂. Agrees in all essential characters with *I. oratoria*, L., but differs well from it in the shape of head, pronotum and elytra.

Larger than *I. oratoria* and more robust. Head transverse, a little less than twice as broad as pronotal dilatation; facial clypeus about one and half times as broad as high, with upper keel not sharp, slightly curved, developed in the middle only and disappearing towards the eyes, with short vertical median carina, extending from upper margin to the middle of clypeus, where there are two raised points; other four raised points are at the angles of clypeus. Occiput distinctly convex. Pronotum rather thick; prozona slightly narrowed anteriorly, with parabolic apex, with feeble median longitudinal furrow; metazona about twice as long as prozona, gradually narrowed posteriorly in its fore half, while in the hind half its sides are parallel; margins of pronotum expanded. Elytra extending but a little beyond the apex of abdomen, about three times as long as they are in the broadest part wide; preradial area widened in its basal third and rather suddenly narrowed towards the apex; the venation agrees with this in *I. oratoria*. Wings distinctly shorter than elytra, with apex parabolic; hind margin almost straight. The armure of fore legs much the same as in *I. oratoria*, but the coxæ are more strongly spined and granulated. Supraanal plate rounded; cerci rounded, rather thick. Subgenital plate with hind margin rather broad, slightly convex.

Greenish-pale; fore tibiæ with inner surface reddish; fore metatarsus black beneath. Coloration of wings as in *I. oratoria*.

Length of body	41 mm.
Width of head	6,5
Length of pronotum	13,5
" metazona	9
Maximal width of pronotum	4,5
Minimal " "	3
Length of elytra	29
Maximal width of elytra	8,5
Length of wings	24,5
" " fore coxæ	9
" " femora	11,5
" " " tibiæ	6
" " hind femora	11
" " " tibiæ	10,5

Four male specimens in the British Museum from Bushire, S. W. Persia taken in September 1890, by W. D. Cumming.

The most striking differences from *I. oratoria* are: the form of clypeus, which in *oratoria* is more than twice as broad as high, with well developed upper carina; the form of pronotum and especially the relative length of prozona and metazona; the length and form of elytra. Co-typic specimens are of brick-red general coloration, but I am not sure that this coloration is natural and not the consequence of immersion in spirit.

8. *IRIS SPLENDIDA*, sp. n.

♀. About the size of *I. oratoria*, L., but more robust. Antennæ thin, setaceous. Frontal clypeus about twice as broad, as high, flat, with two small

tubercles in its middle, its upper carina not sharp, but fully developed, rounded; vertex with two lateral furrows narrow, but very distinct. Eyes egg-shaped; inner orbits slightly emarginate in upper part. Pronotum rather broad; its margins denticulate; fore margin semicircular; sides in prozona and in metazona parallel; coxæ dilatation but a little wider than prozona, while metazona is distinctly more narrow; prozonal disc very convex, with two small oblique impressions near its apex; its longitudinal sulcus scarcely perceptible in the hind part only; transverse sulcus not interrupted, narrow, but very distinct, straight, with ends directed forwards; metazona twice as long as prozona, less convex, slightly selliform in profile, with two shallow impressions just behind the coxæ dilatation, with middle carina entire, though feeble, better developed in the hind part; the whole surface of pronotum, especially the middle part of metazona, bears scattered small granules; hind margin widely rounded, with slight, but sharp, emargination in its middle. Elytra shorter than abdomen, entirely coriaceous, slightly widened towards the apex, which is very widely rounded. Wings semicircular. Anterior coxæ with numerous densely placed acute tubercles beneath; interior surface with an irregular row of callous tubercles; upper external carina armed with eight obtuse spines, with minute acute spinules, placed in interspaces; upper surface slightly convex, smooth, with a few scarcely perceptible spinules, placed in a longitudinal row along the middle. Fore femora and tibiæ with an armure typical for the genus. Supraanal plate semi-elliptical, feebly carinated along its middle. Cerci short, thick, rounded. Subgenital plate with apex divided in two lobes.

General coloration greyish-yellow. Spines of fore femora and tibiæ brownish, darker towards the tips. Fore tibiæ orange red beneath. Fore metatarsi black on the inside, except the apices. Wings violaceous-black; humeral field rose-violaceous, with an oval black spot near the apex; the whole outer margin with a bright sulphurous border about 2-3mm. broad.

Length of body	.. .. .	48 mm.
Width of head	.. .. .	6
Length of pronotum	.. .. .	12,5
" metazona	.. .. .	8,5
Width of prozona in its middle	.. .. .	4
" metazona	.. .. .	3,5
" coxal dilatation	.. .. .	5
Length of elytra	.. .. .	17
Width of elytra in their middle	.. .. .	7
Length of wings	.. .. .	15
Width " in their middle	.. .. .	12
Length of anterior coxæ	.. .. .	9
" " femora	.. .. .	11
" " tibiæ	.. .. .	5,5
" hind femora	.. .. .	10

The type is unique. It was brought home from Afghanistan by Dr. Aitchison of the Afghan Delimitation Commission, but somehow, probably because it had not been set out, it remained unnoticed and was not recorded by W. Kirby, who worked out the collection of the said Commission.* The species is so conspicuous by the splendid coloration of its hind wings, that there is no need for its comparison with other known species of the genus.

9. *HESTIASULA BRUNNERIANA*, Sauss.

Quetta, Baluchistan, 1 ♀ (British Museum).

The single poorly preserved specimen agrees fairly well with Saussure's original description, as well as with Wood-Mason's drawings (Journ. Asiat. Soc., Bengal.

* Trans. Linn. Soc., London, second series, Vol. V, part 3, pp. 137-141.

1884, Vol. liii, pl. xiii, fig. 1a, 1b.) which according to the author (Revis. Mantid., 1889, p. 22) presents the same species. The drawing of the head is, however, not quite exact, since it presents the lower surface of frontal appendix as convex, while it is entirely flat, as rightly described by Saussure. This species has been known from Sylhet, Calcutta and Mysore; Quetta is, therefore, the most north-western known point of its distribution.

10. BLEPHAROPSIS MENDICA NUDA, Giglio-Tos.
1917. *Blepharopsis nuda*, Giglio-Tos, Bull. Soc. Ent. Ital., xlviii,
p. 70 (of separate copy.)

Numerous specimens in British Museum from Arabia, Sinai, Mesopotamia, Quetta, etc.

The characters of *nuda* are not quite constant; especially variable and not characteristic for *nuda* is the degree of hairiness of the pronotum, on which Giglio-Tos has based his species. On the other hand the form of femoral lobes, specially those of middle femora, is rather constant; while in typical *mendica* (from Portugal, Canaries) these lobes are scarcely denticulate at all, the specimens from Desert Asia have the lobes strongly spined. As this character is, however, also liable to individual variation, I think it more right to regard *nuda* as but an Eastern geographical race of *mendica*.

Phasmidæ.

11. BURRIA LONGIXIPHA, Br. Watt.

Aden, Arabia, 1 ♀ (British Museum).

The genus and this species has been hitherto known from the African Coast of the Red Sea.

Locustidæ.

12. ACRIDIUM SUBULATUM, L.—Baghdad, ii. 17 (Bombay N. H. Society).

13. ACRIDELLA ROBUSTA, Uvar.—Persia: Pusht-i-koh, Chekerava, 540 m. above sea-level, 1907, de Morgan (Paris Museum).

14. ACRIDELLA MINIATA, Kl.—Amara, Mesopotamia, viii-ix. 16., Lt.-Col. F. P. Connor (Bombay N. H. Society).

15. ACRIDELLA ANTENNATA, Krauss.

One male and two females were taken at Ktubu, Arabia, by G. W. Bury.

The species is easily recognised by its very long antennæ and strongly attenuate hind angle of pronotum, apart from the peculiar dark coloration of wings.

16. PLATYPTERNA TIBIALIS, Fieb.—Arabia, Percival and Dodson, 2 ♂♂, 2 ♀♀, (British Museum).

17. PLATYPTERNA PICTIPES, sp. n.

♀. Of medium size for the genus. Antennæ rather short (their exact length unknown, the tips being broken), moderately compressed and widened in basal part.

Front moderately reclinate, smooth, but not shining; frontal ridge parallel, slightly dilated near the ocellum, gradually and very feebly widened towards the clypeus; fastigium of vertex seen in profile subequal to one-half of the length of an eye; foveolæ reniform, rather broad, curvate, not strongly impressed, with margins rounded, the upper margins being especially obtuse and low, while the lower ones are better developed; vertex seen from above obtuse, rotundate-triangular at the apex, as broad, as long, convex, with thick, but very low, shining median carina. Eyes oval, oblique. Pronotum feebly, but distinctly constricted in prozona; lateral keels parallel between the fore margin and the second transverse sulcus, gradually diverging behind the latter, slightly convex in about the middle of metazona; median keel sharp, straight, interrupted by the third sulcus; metazona distinctly shorter than prozona, distinctly convex and raised above the level of prozona; hind margin obtusely angulate, with the angle itself not rounded; lateral lobes rather convex, narrowed downwards, with fore margin slightly sinuate, lower margin feebly bisinuate, with a very

minute obtuse angle in the middle, hind margin straight, feebly sinuate; fore and hind angles of lobes a little more than 90°, rounded. Elytra very long, parallel-sided. Hind femora moderately broad, rather robust, subapical filiform part not developed.

General coloration is that of sand. Head with small brownish spots, forming two occipital and two postocular stripes. Pronotum with lateral keels shining, paler than disc; lateral lobes darker along their upper margin and with a narrow whitish border beneath. Elytra sand-coloured in the basal fifth part and colourless in the rest, with a longitudinal row of brownish spots in the intercalate area and 3-4 smaller and more feebly coloured spots in the apical third, just behind the second radial vein; several feebly coloured spots are also scattered on the whole apical half of elytra; all veins and venules are sand-coloured with small irregular darker knots. Wings hyalinous; veins, especially near the apex, brownish. Hind femora with superno-median area of the general coloration, while the externomedian area is whitish; inner surface unicolorous; inner genicular lobe with a round dark-brown spot. Hind tibiae violaceous, their upper surface paler, especially towards the base; spines pale basally, with brown tips.

Length of body	..	..	..	..	33, 5 mm.
„ pronotum	..	..	..	..	6
„ elytra	..	..	..	..	30, 5
„ hind femur	..	..	..	..	15, 5

Type: Muscat, Arabia, G. Jayakar.

This species seems to be related to *P. geniculata*. Bol. (Novit. Zool., XX, 1917, p. 608, No. 9) from Algerian Sahara, but it is well characterised by the structure of frontal ridge, foveolæ of vertex, shape of pronotum and coloration of hind tibiae.

18. *DOCIOSTAUROS CRASSIUSCULUS*, Pant. (= *hauensteini* Bol.).—Persia: Poush-e-kouh, Arkovaz, J. de Morgan, 1904 (Paris Museum).

19. *DOCIOSTAUROS MAROCCANUS*, Thunb.—Persia: Abadeh, Peter Paschen (Bombay N. H. Society).

20. *RAMBURIELLA TRUCHMANA*, F. W.—Syria, Aleppo, F. G. Aldous (British Museum).—The genera *Ramburiella*, Bol. and *Pallasiella*, Kirby, are evidently identical, since *Ramburiella hispanica*, Ramb. and *Pallasiella truchmana*, F. W., are undoubtedly congeneric. As Bolivar's name for the genus is the oldest of the two, the genus must be called *Ramburiella*, and it includes three species: *R. hispanica*, Ramb., *R. truchmana*, F. W. and *R. bolivari*, Kuthy.*

21. *ÆOLOPUS THALASSINUS*, Rossi.—Baghdad, ii., 17 (Bombay N. H. Society).

22. *ÆOLOPUS STREPENS STREPENS*, Latr.—Syria, Aleppo, F. G. Aldous; Baghdad (British Museum); Persia: Susa, J. de Morgan (Paris Museum).—This Mediterranean species has never been previously recorded from the Desert subregion and its occurrence in Baghdad and Susa in the typical form is quite interesting, since in S. W. Persia another race occurs, which is described below.

23. *ÆOLOPUS STREPENS DESERTICOLA*, subsp. n.

Differs from the typical Mediterranean form in the following characters:—

Pronotum more distinctly constricted, less convex above; elytra somewhat longer; general coloration brownish-grey; elytra with wider light transverse bands; wings feebly infumate apically; hind femora with black points along the lower carina of the area externomedia and with three indistinct fasciæ in the same area; inner side of femora pale with two black fasciæ; hind tibiae bluish with black base, and a pale subbasal ring, followed by a dark grey ring.

* Described as *Stethophyma bolivari* Kuthy (Ann. Mus. Hung., 1907, p. 431), and again by me as *Arcyptera elegans*, Uvar. (Horæ Soc. Entom. Rossicæ, Vol. 39, 1910, p. 370; see also Bull. Mus. Caucase, xii, 1919, p. 156); this species is very closely related to *R. hispanica*, Ramb. and is possibly but a geographical race of the latter

		♀
Length of body	.. .. .	20 mm.
„ pronotum	.. .. .	4
„ elytra	.. .. .	19, 5
„ hind femur.	.. .. .	12

Described from one male specimen, taken at Kazvin, N. W. Persia, 25, viii. 19, by P. A. Buxton.*

24. *LERINA ÆOLOPOIDES*, sp. n.

♂. Of the size of *L. ædipodioides*, Bol., but more compressed laterally. Antennæ very feebly flattened and scarcely dilated apically. Head in profile distinctly reclinate; frontal ridge gradually, though feebly, widened towards clypeus, shallowly, but distinctly, impressed, with margins raised, rather sharp; facial keels raised, almost straight. Fastigium of vertex distinctly longer than broad, pentagonal, with apex much attenuate, acute; lateral margins raised, sharp, the anterior ones feebly concave; surface very feebly sloping forwards, slightly concave. Temporal foveolæ elongate, strongly narrowed anteriorly, triangular, feebly curvate, shallow, with raised margins. Eyes slightly higher than broad, less rounded anteriorly than posteriorly. Occiput with its surface uneven. Pronotum distinctly constricted laterally, much alike in its shape to that of *Æolopus strepens*, Latr.; disc subtectiform, feebly narrowed anteriorly; median keel raised, slightly lowered behind the first transverse sulcus, interrupted by the hind sulcus, which is placed distinctly before its middle; metazona with its hind angle acute; lateral keels scarcely perceptible in the fore part of prozona, very obtuse in metazona; lateral lobes higher than long, with their lower margins oblique in the fore part; their fore angle obtuse, hind angle straight, widely rounded. Elytra with the fore ulnar vein sinuate; false vein in discoidal area thick, distinctly transversely serrulate, approaching apically to the hind radial vein; interulnar area more than twice as broad as the discoidal area, with the false vein distinct only near the base of the area, the rest of the latter being irregularly reticulated; furcal branches of the ulnar vein, as well as the false vein in the interfurcal area and transverse venules in the same area, are distinctly thickened, callous.

General coloration reddish-sandy with black and grey points and designs. Antennæ unicolorous. Face whitish; frontal and facial keels with black longitudinal spots. Pronotum with numerous blackish points. Elytra with three broad castaneous fasciæ: sub-basal, median and pre-apical, all reaching the anal area, but not extending into it; interspaces between the fasciæ whitish; apex hyaline; anal area sandy. Wings feebly greenish basally, with an indefinite infumate preapical fascia, not reaching the inner margin. Hind femora outwardly reddish-sandy in the basal half and blackish apically, with a reddish ring before the knee; innerside and lower sulcus totally black, except a pale preapical ring; knees blackish, except the reddish upside. Hind tibiæ black, with apex and a narrow subbasal ring ivory white. Hind tarsi ivory white, with second joint brownish. Abdomen reddish with 3-6 segments black laterally.

Length of body	.. .. .	16, 5 mm.
„ pronotum	.. .. .	4
„ elytra	.. .. .	18
„ hind femur	.. .. .	9, 5

The unique specimen of this species has been taken by A. S. G. Jayakar at Muscat, Arabia (British Museum). It is with some hesitation that I put this species into the genus *Lerina*, Bol. which has been described from one Indian

* Specimens of this race recorded by me (Journ., Bombay N. H. Soc., Vol. xxvii, 1921, p. 804) from Mesopotamia, seem to belong to a distinct species, which I am unable to identify with certainty now, owing to scarcity of material.

species—*L. adipodioides*, Bol. The new species itself is very striking by its close resemblance to *Eolopus strepens*, Latr., by venation of elytra and by coloration of the same and of hind legs.

25. *LERINA BUXTONI*, sp. n.

♂, Of the size and habitus of the Indian *L. adipodioides*, Bol. Antennæ slightly flattened, feebly dilated towards the apex; last joint truncate. Front in profile distinctly reclinate; face impresso-punctate; frontal ridge subparallel, rather suddenly narrowed near fastigium and very feebly widening towards clypeus, not reaching the latter, flat, with a small impression below the ocellum, with lateral margins obtuse; facial carinæ obtuse, rather thick, feebly curvate. Vertex slightly sloping; fastigium much longer than broad, elongato-hexagonal, narrowly truncate anteriorly, slightly concave, with raised margins; foveolæ long and straight, strongly narrowed anteriorly, almost triangular, shallow, with margins not sharply delineate. Eyes almost vertical, distinctly higher than broad, with fore margin straight. Pronotum feebly constricted and rounded in prozona, which is distinctly longer than metazona; median keel in prozona scarcely distinct, interrupted by two transverse sulci, in metazona sharp, though low; lateral keels in the shape of small, low tubercules near the fore margin of prozona and very obtuse in metazona; fore margin of the pronotal disc slightly prominent, with a small emargination in the middle; hind margin obtusely angulate, widely rounded; lateral lobes much higher than long, with lower margin oblique in its fore part, fore angle obtuse, hind angle about 90° rounded. Elytra extending beyond the hind knees; interular field about twice as broad as discoidal, with an irregular false vein; intercalate vein in discoidal area approaching apically to the radial vein; two furcal veins and the false vein in the furcal area, as well as transverse venules in the same area thick, callous. Venation of wings as in *L. adipodioides*, Bol. Hind femora short, broad; hind tibiæ shorter than femora.

General coloration is that of sand, with numerous greyish and blackish points. Antennæ brown with numerous pale rings. Pronotum above brick-reddish, with two indefinite blackish longitudinal sinuate fasciæ. Elytra with three irregular blackish bands and scattered brownish-grey spots. Wings hyalinous, very feebly coerulescent basally. Fore and middle legs with several brown transverse fasciæ. Hind femora with two irregular transverse fasciæ in area externomedia and with three on the upper side; inside black, except a post-median and a preapical pale fascia; knees black from inside and grey outwardly. Hind tibiæ ivory white, with base, median and preapical rings, and tips of spines, black.

Length of body	..	..	..	..	19, 5 mm.
„ pronotum	..,	..	..	..	3, 5
„ elytra	..	..	..	..	19
„ hind femur	..	..	..	..	9, 5

The unique type specimen has been taken by P. A. Buxton at Amara, Mesopotamia, 10. viii, 18, together with a paratypic male, which agrees with the type in all morphological characters, but has the elytra unicolorous, without any trace of fasciæ or spots.

26. *EDALEUS NIGROFASCIATUS*, De Geer.—Persia: Bakhtyari Mountains, 1500-4500 m., J. deMorgan, 1904 (Paris Museum).

27. *SCINTHARISTA NOTABILIS BRUNNERI*, Sauss.

1884. *Scintharista brunneri*, Saussure, Prodr. Oedipod., p. 121, No. 1.

1888. *Quiroquesia brullei* var. *blanchardiana*, Saussure, Add. ad Prodr. Oedipod., p. 35.

The most careful examination of the cotypes of *blanchardiana*, Sauss., which are in British Museum, and comparison of them with original description of *brunneri*, Sauss., leaves no doubt in the identity of this form. It is evident, therefore, that the genera *Scintharista*, Sauss., and *Quiroquesia*, Bol., are identical

and Saussure's name has priority. I consider the Asiatic *Sc. brunneri*, Sauss., as a mere geographical race of the Western Mediterranean *Sc. notabilis*, Walk. (= *brullei*, Sauss.), the difference between them being too insignificant for separation of species. This race occurs in two different colour forms, which might be taken together, one with rose wings and another with yellow wings; it is distributed all over the deserts of S. W. Asia. from North Kashmir and Bombay to Ordubad in Transcaucasia and to Southern Arabia, occurring even at Massowah, on the African Coast of the Red Sea.

Specimens in British Museum are from following localities:—Aden, Arabia (Co-types of *blanchardiana*, Sauss.); Muscat, Dr. Jayakar; Malakand, N. India, A. Begbie; Campbellpore, N. India; Hunza, N. Kashmir; Quetta, Baluchistan. In the Bombay Natural History Society there is one female from Teghab Kelat, Baluchistan, 28, viii, 17, J. E. B. Hotson.

28. *MORPHAERIS FASCIATA*, Thunbg., ab *sulcata*, Thunb.—Syria, 1 ♂ (British Museum).—Full synonymy of this species is given by me in another paper on the Indian Orthoptera. *Annals and Magazine of Natural History*, 1921, p. 488).

29. *MIOSCIRTUS WAGNERI* Ev.—Fao, Persian Gulf, v., 91, W. D. Cumming, 2 ♀ ♀—Specimens from Mesopotamia and Southern Persia are somewhat larger than those from the original locality of the species, which is Sarepta, North from Caspian Sea; if this difference proves to be constant in large series of specimens, a distinct southern geographical race may be distinguished, which might be called subsp. *rogenhoferi*, Sauss. (described as *Conozoa rogenhoferi*, Sauss.).

30. *PYRGODERA ARMATA*, F. W.—Jebel-Hamrin, River Diala, Mesopotamia, vii, 18, 1 ♂, H. D. Piele; Bakhtyari, W. Persia, 29, vi, 11, 1 ♂, G. B. Scott (British Museum); Abadeh, W. Persia, P. Paschen (Bombay Society); Eivar-i-kerkha, Persia, iv. Vol. 1907, I. deMorgan (Paris Museum).

31. *SPHINGONOTUS SAVIGNYI*, Sauss.—Abadeh, Persia, vii-viii, P. Paschen (Bombay Society).

32. *SPHINGONOTUS BRUNNERI*, Sauss.—Abadeh, Persia, vii-viii, 1 ♀, P. Paschen (Bombay Society).

33. *SPINGONATUS BALTEAUS*, Serv.—Abadeh, Persia, vii-viii, 1 ♂, 2 ♀ ♀, P. Paschen (Bombay Society).

34. *SPHINGONOTUS OCTOFASCIATUS*, Serv.—Abadeh, Persia, v-vi, 2 ♂ ♂, 3 ♀ ♀, P. Paschen (Bombay Society).

35. *HELIOSCIRTUS MOSERI*, Sauss.—Benn-Chah-Bah, Baluchistan, 20, viii, 17, 1 ♀, J. E. B. Hotson (Bombay Society).

IRANELLA, gen. nov.

General habitus not unlike that of *Sphingonotus*, but elytra and wings only half developed.

Head rather large and thick. Front vertical; frontal ridge above ocellum flat, broad, strongly punctured, below ocellum suddenly depressed and narrowed, with lateral margins raised, and totally disappearing half-way between ocellum and clypeus; face broad; facial keels strongly raised, rather thick, vertical, diverging downwards; lateral ocelli touching the eyes and lateral margins of fastigium; fastigium strongly sloping, slightly convex, strongly rugose, with a short median sulcus which is widened anteriorly, then narrowed again and passing gradually into frontal ridge; vertex between the eyes slightly concave, broad, with lateral margins straight, parallel, with a low median carinula, bifurcate anteriorly, very narrowly sulcate and extended into the occiput, the latter strongly rugose. Pronotum in prozona constricted and cylindrical intersected by three deep transverse sulci, the second one being bifurcate in that disc, so that the latter is intersected by four sulci; lateral keels in prozona distinct, but interrupted in the middle; metazona equal in length to prozona, slightly convex, strongly rugose and densely covered with small tubercules, while tubercules in prozona are large, but not densely placed; median carina in prozona replaced by a scarcely perceptible sulcus, while in metazona it is

well developed, very thin, linear; hind angle of metazona straight, rounded; lateral lobes about as long as high, strongly widened upwards, their fore margin slightly sinuate, lower margin oblique and very feebly sinuate in the fore part, hind margin very oblique, almost straight; hind angle obtuse, rounded; prozona in lateral lobes more than twice as long as metazona. Prosternum with its fore margin produced in a large, trapezoidal collar, widened and slightly bisinuate apically, with outer angles a little less than 90° . Pectus very broad; mesosternal lobes trapezoidal, a little broader than long, with inner and hind margins straight, inner angles sharp, about 90° ; mesosternal interspace broader than long; metasternal lobes extremely short, their interspace equal in breadth to the mesosternal one. Tympanum very large, oval. Fore and middle tibiae armed with 2-3 small spines both on outer and inner side near the apex. Hind femora rather short, thick, with upper carina denticulate; lower carina not widened, almost straight. Hind tibiae slightly incurved and widened towards the apex, with 9 inner and 8 outer spines, without subapical spine on the outside; outer spurs twice as short as the inner ones. Elytra just a little longer than abdomen, coriaceous, rugose, with the fore margin gradually rounded, hind margin almost straight, apex widely rounded; veins rather irregular, sinuate; pre-radial area broad; discoidal area open with an irregular intercalate vein; anterior ulnar vein straight, reaching the apex of elytra; anal area almost equal in breadth to one half of the whole elytra. Wings shorter than elytra, circular.

Genotype: *Iranella eremiaphila*, sp. n.

36. IRANELLA EREMIAPHILA, sp. n.

♂: Greyish ochraceous, with whitish and grey marks. Elytra beneath with several confluent round black spots in the pre-radial area and four smaller and lighter coloured ones in discoidal area; all these spots are slightly conspicuous (grey) on the upper side; the hind radial and humeral veins, as well as all transverse venules of the anal field bluish-black on the lower side, but not distinctly coloured on the upside of elytra; hind femora slightly rose in the basal half of the inner side, with two scarcely perceptible greyish transverse fasciae in area extreno-media; knees grey. Hind tibiae bluish-grey in the basal half, slightly rose apically, with spines sanguineous, black tipped.

Length of body	..	..	..	..	15 mm.
„ pronotum	..	..	..	..	5, 5
„ elytra	..	..	..	..	11
Maximal width of elytra	..	..	..	..	5
Length of hind femur	..	..	..	..	10

The type of this striking insect is unique. It has been taken by P. Paschen in Abadeh, Persia, vii-viii, 1916.

This insect somewhat resembles *Sphingonotus* in the shape of the head and pronotum, but the disc of the latter is intersected by four sulci; short elytra and wings give it a general appearance quite unlike any other genus of *Edipodinae*. The black spots on the underside of elytra remind one of the Mantid genus *Eremiaphila*; their biological meaning is quite incomprehensible without a careful study of the biology of the insect in its natural surroundings.

37. EDIPODA GRATIOSA, Serv.—Persia; Abadeh, vii-viii. 16, P. Paschen (Bombay N. H. Society).

38. ACROTYLUS LONGIPES, Charp.—Arabia: Muscat, 1 ♂, A. S. J. Jayakar (British Museum).

39. ACROTYLUS INSUBRICUS, Scop.—Persia: Abadeh, vii-viii, 16, P. Paschen (Bombay N. H. Society).

40. TMETHIS CISTI, F.—Syria: Aleppo, F. G. Aldous (British Museum).

41. TMETHIS SAUSSUREI, Uvar., ab. VIOLACEA, n.—Differs from the typical blue-winged form only by the violaceous colour of wings, all morphological

characters, as well as dimensions, being the same. Types and several cotypes from Abadeh, Persia, P. Paschen (British Museum and Bombay N. H. Society).

42. *TMETHIS HOTSONI*, sp. n.

♀. Large, laterally compressed. Head narrow, prominent above pronotum; front reclinate; frontal ridge expressed above ocellum only, totally and abruptly disappearing below it; fastigium of the vertex strongly sloping, longer than broad, slightly widened anteriorly, transversely rugose; eyes very prominent, oval; occiput with an irregular median carina. Pronotum laterally compressed, especially so in prozona, which is considerably narrower and shorter than metazona; prozona strongly tectiform, with median crista thick, deeply intersected by three transverse sulci, the hindmost of which is especially deep; metazona as high, as prozona, thick, tectiform in its fore half, with thick elevated carina, which disappears on the apical third; hind angle acute, rounded; lateral lobes much higher, than long, with fore margin slightly sinuate; lower margin sinuate anteriorly; hind angle of lobes straight, rounded; whole pronotum is covered with rather large, but not dense callous tubercules; metazona rugulose. Elytra very long, extending far beyond hind knees. Hind wings a little shorter than elytra. Mesosternal lobes nearly triangular, their inner margins being strongly oblique; interspace much broader, than long. Metasternal lobes widely separated. Hind femora elongate, granulose, with upper margins slightly undulate; lower margin straight. Second abdominal segment raised posteriorly in a rather thick median protuberance.

General coloration whitish-grey; pronotum feebly brick-reddish. Elytra ochraceous-grey, with indistinct grey marks. Wings light greenish-blue, with a 4-5 mm. wide black band, which starts from the middle of fore margin and runs straight backwards to the hind margin but does not reach it by about 5 mm., suddenly turning under a straight angle inwardly and reaching the inner margin; two apical lobes brown. Hind femora coeruleous beneath, light blue inwardly, with inner knee lobes dark blue. Hind tibiae with inner and upper surfaces blue, with a pale ring near the base and a red apical spot. Abdomen pale with hind margins of basal tergites blue-black.

Length of body	..	..	..	..	65 mm.
„ pronotum	..	..	..	..	14
„ elytra	..	..	..	..	56
„ hind femur	..	..	..	..	24

The female of this species has been taken by Lt.-Col. J. E. P. Hotson in Mand, Baluchistan, 29, iv. 1916, on sand; it bears the remark, "plentiful," but only one rather damaged specimen has been included in collection sent to British Museum by the Bombay Society. The species belongs to the group of *T. gibber*, St., but is bigger, more constricted laterally, with longer elytra, than any other known species, and is also easily recognised by narrow band of wings, bent under a right angle.

43. *PÆCLOCERUS VITTATUS*, Klug.—Arabia: Aden, Ktubu (British Museum).

43a. *PÆCLOCERUS VITTATUS* var. *CALOTROPIDIS*, Karsh.—A very large series of specimens in British Museum from Hadramaut, Arabia.

44. *PÆCLOCERUS PICTUS*, F.—Baluchistan: Quetta (British Museum); Ormara, W. Cumming; Nal, 21, ix. 17 and Greshag-Kalat, 28, viii, 17, J. E. B. Hotson (Bombay N. H. Society).—These are the most north-western records of this Indian species.

44a. *PÆCLOCERUS BUFONIS*, Klug. and ab. *vulcania*, Serv.—Very numerous specimens in Paris Museum from Sinai, J. Couart, 1908, belonging both to typical form and entirely black ab. *vulcania*, together with several of intermediate coloration.

45. *PÆCLOCERUS ARABICUS*, sp. n.

♂. Size rather small for the genus. Antennæ feebly flattened, distinctly longer than head and pronotum together. Front not very oblique, scarcely concave

in profile; frontal ridge between antennæ strongly compressed, very narrowly sulcate, the sulcus slightly widened towards ocellum, suddenly narrowed below it, gradually widened and becoming more shallow towards the clypeus, not reaching the latter; lateral facial keels more raised near the eyes, lowered below their middle. Fastigium of vertex attenuate, convex, rugosely punctate, with apex deeply furrowed. Eyes very prominent, short, oval. Occiput with a low median carina. Pronotum short, convex, its whole surface feebly coriaceous; transverse sulci very feeble; median carina undeveloped in prozona and scarcely perceptible in metazona; the latter a little shorter, than prozona; hind margin very widely rounded; lateral lobes with fore angles very obtuse, hind angles obliquely truncate. Elytra narrow, extending a little beyond hind knees, marginal field feebly widened basally and gradually narrowed towards apex, the basal dilatation being, therefore, not as well marked, as in most other species of the genus; apex of elytra elliptical. Wings shorter than elytra, with disc coloured. Hind femora slender, narrow. Supraanal plate obtusely triangular. Cerci short, slightly compressed, obtuse. Subgenital plate thick, rounded, carinated apically.

General coloration grey. Antennæ with basal joints blackish, with apical two-thirds irregularly annulated with brown, black and pale rings; apical joints black. Face pale-brownish. Fastigium blackish from above. Occiput of darker shade than the cheeks. Pronotum unicolorous grey, with hind margin narrowly shining black. Mesonotum and metanotum bluish-black. Elytra ash-grey, with numerous orange-yellow speckles. Wings rose, except the apex and hind border, which are hyalinous; veins in apical part brownish. Abdomen dirty-yellow, with brown rings at the base of each segment. Fore and middle legs uniformly brownish-grey. Hind femora grey on the outside and black inwardly. Hind tibiæ dark violaceous, with base almost black; spines pale with black tips. Two basal joints of hind tarsi pale with brown spots; last joint violaceous.

Length of body	.. .. .	33 mm.
„ antennæ	.. .. .	12, 5
„ pronotum	.. .. .	7
„ elytra	.. .. .	25, 5
„ hind femur	.. .. .	15

Arabia: Ktubu, G. W. Bury, 1 ♂ (British Museum). -

This species is very well characterised by its coloration, as well as by morphological features, the shortness of pronotum and form of elytra rendering the best characters for separating it from its related species.

46. *PYRGOMORPHA CONICA*, Ol.—Amara, Mesopotamia, F. P. Connor (Bombay Society).

47. *TROPIDAUCHEN ESCALERAI*, Bol.—Persia, 1 ♀ (British Museum). This species differs from *T. securicollis*, Sauss. by but unimportant characters and is, probably, only a geographical form of the latter species.

48. *TROPIDAUCHEN CULTRICOLLE*, Sauss.—Afghanistan: Hari-rud valley, 1 ♂, 1 ♀, 1 larva; Badghis, 1 larva (British Museum).—These specimens have been recorded by Kirby (Trans. Lin. Soc. London, Zool. v, 3, p. 139, No. 11) as *Eunapius granosus*, Stal.

49. *DERICORYS ALBIDULA*, Serv.—Persia: Fao, 1891, W. Cummings (British Museum).

1839. *Dericorys albidula*, Serv., Ins. Orth., p. 639.

1853. *Cyphophorus tibialis*, Fieber, Lotos, iii, p. 121, No. 2.

1875. *Derocorys acutispina*, Stal, Bih. Sven. Akad., iii (14), p. 27, No. 1.

1889. *Derocorystes curvipes*, Redt., Wien Ent. Ztg., viii, p. 29, No. 5.

1913. *Dericorys albidula*, Bolivar, Novitates Zool., xx, p. 613, No. 23.

I am fully convinced by the most careful study of descriptions of all above quoted species, that there exists only one large species of *Dericorys*, which is

distributed from Transcaspia to Sahara and from Persian Gulf to Syria. The characters given by Bolivar (l.c.) as separating *albidula*, Serv., from *curvipes* Redt., are not specific but individual.

50. *TROPIDOPOLA OBTUSA*, sp. n. (fig. 2).

In studying a rather extensive series of *Tropidopola* (12 ♂♂, 13 ♀♀) taken in different parts of the Desert region, and comparing these specimens with those of *Tropidopola cylindrica*, Marsh, from Greece and Macedonia, I came to the conclusion that the desert species is not *cylindrica*, as it has been identified by all authors, including myself, but is well distinct from it. As it, however, agrees with *cylindrica* in all characters, except structure of the head, which is quite different and very constant throughout the series, I think it unnecessary to give a full description of the new species, and the following key together with drawings must be sufficient for separating it from *cylindrica* :—

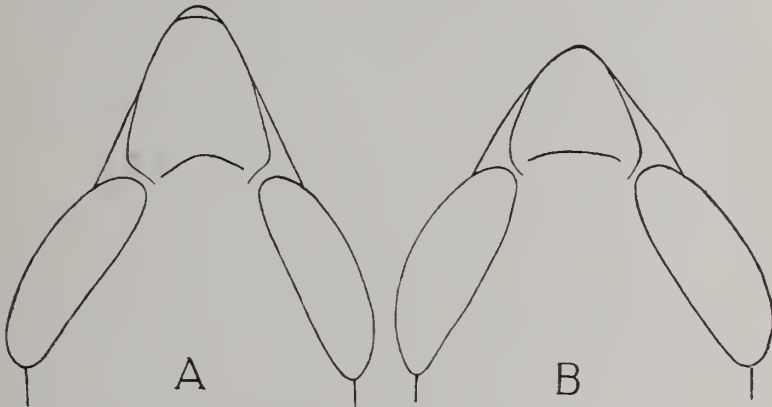


Fig. 1. A. *Tropidopola cylindrica* Marsh.
 B. *Tropidopola obtusa*. sp. n.

- 1 (A) Head not thicker than pronotum, gradually narrowed anteriorly. Front long, more reclinate, in profile quite straight; frontal carinæ straight, converging gradually towards fastigium. Fastigium of vertex (fig. 1) distinctly longer than its base wide; its sides straight, apex subacute. Eyes more elongate. Antennæ distinctly flattened with median joints subquadrate. *T. cylindrica* Marsh.
- 2 (B) Head a little thicker than pronotum. Front shorter, less reclinate; in profile slightly convex; frontal carinæ subparallel, suddenly converging between the base of antennæ and fastigium. Fastigium of vertex (fig. 2) not longer than its base wide; its sides convex; apex rounded. Eyes shorter and broader. Antennæ scarcely flattened with median joints distinctly longer than wide. Length of body of the type (female) 35mm. ; of pronotum 6, 5; of elytra 26; of hind femur 14, 5. *T. obtusa*, sp. n.

The type is from Qualat-Salah, Mesopotamia, 6, i., 1918, P. A. Buxton. Other specimens of *T. obtusa* studied by me were from following localities:—

Mesopotamia: Amara, Basra, P. A. Buxton; S. Persia: Fao, D. Cummings, River Karun, Mohamarra, K. C. Mabbs (British Museum); Susa, J. deMorgan (Paris Museum).

Two specimens taken by Dr. Buxton in Mesopotamia (1 ♂ from Basra, 12, viii, 18 and 1 ♀ from Amara, 18, vii, 18) differ from all others by their light green coloration, which is more fresh in ♀, while the male is slightly brownish from above; both specimens are also larger than usual, and have longer antennæ

consisting of more elongated joints, than may be seen in typical specimens of *obtusa*. Without studying a larger series of this form, I cannot decide whether those characters are sufficiently constant to be specific, and I propose in the meantime to designate it as var. *VIRESCENS*; n. The dimensions of the typical specimen (female from Amara, Mesopotamia) are, as follows:—Length of body 39 mm.; of pronotum 7; of elytra 28; of hind femur 16, 5.*

51. *THISÆCELRUS* (?) *MORBOSUS*, Serv.

1839. *Acridium morbosum*, Serville, Ins. Orth., p. 682, No. 44.

1870. *Caloptenus cincticollis*, Walker, Cat. Derm. Salt. Br. Mus. iv, p. 689, No. 29.

There is no doubt though the types of *cincticollis*, Walk., are lost, that this species is identical with *morbosum*, Serv., both insects having been described from Sinai; I have seen two females from the same locality: Sinai, J. Couayt, 1909; desert Arabique, Mahamadieh, canal de Suez (Paris Museum). In British Museum there is one female of this species, which is labelled "Spain" which is doubtless wrong and due to some mistake in labelling. I am not quite sure, whether the species belongs to *Thisæctrus*, where it is included by some authors, but the question cannot be decided, until male specimens are studied.

52. *SPHODROMERUS CÆLESYRIENSIS*, Giglio-Tos (Fig. 3c, 4c.).

1893. *Caloptenus calesyriensis*, Giglio-Tos, Boll. Mus. Zool. An. comp. Torino, viii, N. 164, p. 10, No. 51, fig. 4.

1914. *Calliptamus italicus*, L. ab. *carbonaria*, Uvar., Revue Russe d'Entom., xiv, p. 10.

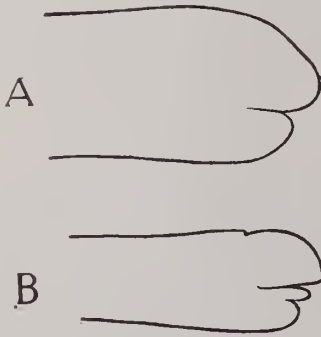


Fig 2. *Tips of the male cerci.*

A—of *Calliptamus calesyriensis*, G. T.

B—of *C. italicus*, L.

Shortly after I described *carbonaria* I had the opportunity of studying extensive series of the same insect from different localities in Transcaucasia, Persia and Kurdistan, as well as of making some field observations on living insects, which enables me to state, that it is quite a distinct species from *italicus*, L. The examination of a single male in British Museum from Syria (Aleppo) enables me to identify *carbonaria* with *calesyriensis*. The species is rather variable in the development of lateral keels of pronotum and, as its coloration also varies from pitch-black to reddish-grey or clay-yellow, it might be mistaken for *italicus*. It differs, however, from the latter species by shorter and broader hind femora, and, more distinctly, by the shape of end of male cerci, which in *italicus* is armed with two small teeth under the apical lobe, while in *calesyriensis* there is

only one tooth; these differences are clearly shown in figures (see fig. 2). This species is distributed from Syria to Turkestan (Ferghana) and from S. E. Transcaucasia to Central Persia (Teheran, in Caucasian Museum; Pusht-i-Kuh, Paris Museum).

53. *THISÆCETRUS ADSPERSUS*, Redt.—Mesopotamia: Sinn-Abtar, vii, 16, Shortridge; Amara, viii-ix, 16, Connor; Baghdad, 13, ii. 17 (Bombay Society).

* Specimens of *Tropidopola* from Algeria, whence I have studied only three examples, are more alike *obtusa*, than *cylindrica* in the shape of fastigium, but they differ by the frontal carinae being gradually convergent, as in *cylindrica*. I propose to regard the Algerian *Tropidopola* as a geographical race of the desert *obtusa*, under the subspecific name *algeriana*, subsp. nova (type from Biskra, Algeria, W. I. H. King.)

54. *THISCETRUS DORSATUS*, F.-W.—Mesopotamia: Sinn.-Abtar vi, 16, G. C. Shortridge (Bombay Society).

55. *THISCETRUS PULCHER*, Bol.—Baluchistan: Gaza Kalah, 1, ix, 1917, J. E. B. Hotson (Bombay Society).—The species belongs to Indian fauna and this is the most north-western record of its occurrence.

Tettigoniidae.

56. *EURYCORYPHA STYLATA*, St.—El-Kubar, N. W. Arabia. G. W. Bury, 2 ♂♂ (British Museum).—The genus is essentially African in its distribution and the species is African.

57. *EUCONOCEPHALUS INCERTUS*, Walk.

1869. *CONOCEPHALUS INCERTUS*, Walk.—Cat. Derm. Sait. B.M., ii, p. 320.

1891. *CONOCEPHALUS BREVICEPS*, Redt.—Verh. Zool.-Bot. Ges. Wien, p. 417.

To this species must be partly referred records on the occurrence in the deserts of S. W. Asia of *Hem. nitidulus*, Scop. The above synonymy is established by me after comparison of Redtenbacher's description with Walker's types of *incertus*. I have seen the specimens from the following localities:—Arabia: Fao, 27, x., 91, 1 ♀; Aden, 16, iii, 95, 1 ♀; Mesopotamia: Amara, P. A. Buxton, 1 ♀ (named by L. Chopard as *nitidulus*, Scop); Baluchistan; Omarah, W. D. Cummings, 1 ♀ (all in British Museum).

58. *XIPHIDIUM FUSCUM TURANICUM*, Sem.—Amara, Mesopotamia, viii-ix, 16-30, v. 17, F. P. Connor (Bombay Society).

59. *DECTICUS ALBIFRONS*, Cyr.—Mesopotamia: Amara, vii., 16, F. P. Connor: Sinn.-Abtar, vii, 16, G. C. Shortridge.

60. *TRIGONOCORYPHA ANGUSTATA*, sp. n.

♀: Fastigium of vertex triangular, with middle sulcus broad and deep, open anteriorly. Pronotal disc rugulose, very feebly convex anteriorly and as feebly concave posteriorly; fore margin rotundately concave; hind margin circular with a very small emargination in its middle; lateral carinae straight, feebly convergent anteriorly, more distinctly serrulate in prozona, than in metazona; transverse sulcus feeble, curved backwards in the middle, placed at the end of the basal third; lateral lobes forming a right angle with disc, distinctly higher than long; their fore margin very feebly concave, lower and hind margin widely rounded. Elytra reaching well beyond hind knees; marginal field strongly widened, but near its apical third rather suddenly narrowed, fore margin being distinctly concave and the apex of elytron lanceolato-attenuate; radial veins almost straight; first radial branch bifurcate, second one not divided; hind margin in apical half distinctly concave. Wings longer than elytra, with apex acute. Hind femora with two rows of numerous spinules beneath. Subgenital plate short, triangular. Ovipositor short, strongly recurved.

General coloration brownish (probably decolorated through preserving in some liquid); pronotal carinae slightly darker; all other parts unicolorous.

Length of body	.. .. .	26 mm.
,, pronotum	.. .. .	6.5
,, elytra	.. .. .	37.5
Width of ,, in the middle	.. .. .	10
,, ,, in the apical fourth	.. .. .	6
Length of wings	.. .. .	40
,, hind femur	.. .. .	24
,, ovipositor	.. .. .	6

The only specimen of this species is from Fao, Persian Gulf (British Museum).

This is the fourth known species of the genus, the two previously known (*unicolor*, Stall, and *abnormis*, Br. W.) being Indo-Malayan in their distribution, and one has been described recently from Madagascar (*maxima*, Carl, Rev. Suisse Zool., vol. 22, No. 6, 1914, p. 167, pl. 5, fig. 5). Form of elytra in the new species is quite peculiar and the shape of fastigium of vertex, which is completely divided in two lateral parts by middle sulcus, presents another good specific character.

Gryllidæ.

60. BRACHYTRYPES CHOPARDI, sp. n.

♂. Of the size and habitus intermediate between *membranaceus*, Drury, and *megacephalus*, Lef.

Head slightly broader than pronotum. Face flattened, vertical, in shape of a regular circle (its vertical diameter being equal to horizontal one). Fastigium of vertex with a not deep impression in the form of a half-moon. Ocelli as usual for the genus size; the middle ocellus placed a little lower than the line connecting lateral ocelli; the latter placed on the outer side of vertical keels which are distinctly convergent downwards and not extending beyond the base of antennæ; middle facial space between these keels trapezoidal, distinctly higher than broad, with a wide slightly raised coarsely lineato-rugose transverse band; in the middle of which there is a small tubercle with the median ocellum on it; below this band face is rugose, except a smooth shining oval space just beneath ocellum; lower part of face, between bases of antennæ, is slightly convex; below and a little outwardly from bases of antennæ, there are short vertical keels, slightly raised and obtuse. Clypeus with a distinct transverse keel. Occiput strongly convex, raised above pronotum, very sparsely and minutely punctured. Pronotum distinctly constricted in its hind part, but less so than in *megacephalus*; its length exceeds its basal width by a little; its apical width is subequal to one and a half of the length. Disc rugose, with a short smooth median line in the fore half. Fore margin slightly concave; hind margin straight. Lateral lobes a little longer than high, scarcely broadened downwards; fore margin and fore angle broadly rounded; lower margin straight, slightly ascending backwards; hind angle about 100°, rounded; hind margin vertical. Elytra about four and half times as long as pronotum. Tympanal field slightly longer than broad. Harpa with three long and 1-2 short oblique veins. Speculum oblique, elongate; its externo-anterior margin straight; fore angle nearly straight, slightly rounded. Apical field occupies less than one-third of the whole length of elytra. Lateral field with 5 branches of radial vein and 8 oblique veins, with feeble transverse venules. Wings fully developed, extending about one-fourth their length beyond the apex of elytra. Fore tibia with a large oblique tympanum on the outer side, and with but a small one inwardly; apical tibial spurs short and obtuse, the two inner ones equal to one-third part of the first tarsal joint; the outer spur about one-half of the inner. Fore tarsi about twice shorter, than tibiæ; first joint as second and third together; its apex seen from beneath oblique, obtusely produced; second joint, equal to one-third of the first; third joint twice as long as second; claws thin, almost straight, with apex bent, acute. Middle tibiæ armed with four thick and short apical spurs, the two inner and lower outer one being subequal in length to each other, while upper outer is shorter. Hind tibiæ armed inwardly and outwardly with 3-4 irregular spines of different size and shape and with six apical spurs; upper inner spur is the longest, reaching about the middle of metatarsus, and incurved; two lower spurs short and rather thin, the inner of them being a little shorter than the outer; three remaining spurs are subequal in length to each other, about one-third of metatarsus, thick, straight. Metatarsus equal to one-half of tibia, armed with three short irregular spinules outwardly and four inwardly, and with two apical spurs, the outer spur being quite short, very thick and obtuse, while the inner reaches about the middle of the third joint of tarsus, thick, slightly recurved, with obtuse apex. Supraanal plate thick, with middle part impressed. Cerci slender long, with long perpendicular hairs. Subgenital plate acutely navicular.

General coloration brownish-pale. Face pale, with the suture between it and clypeus blackish-brown; trapezoidal space upwards from the middle ocellum and its lateral margins, as well as upper margin of antennæ impressions, castaneous; vertex light castaneous, the colour gradually fading in occiput

eaching the hind margin; lateral lobes gradually widened anteriorly; their hind margin forming an obliquely rotundate line with lower margin; fore angle about 90° , rounded. Elytra not reaching the apex of abdomen; tympanal area much broader, than long; four oblique veins, the first of which is but feebly developed; speculum rotundato-rhomboidal, with transverse vein curved; marginal field with 5 branches of radial vein and four oblique wings. Wings undeveloped. Hind tibiae rather inflated on the upper side, just beyond the base; both upper margins in apical half sharp; five outer spines, the first of which is about half of the second and each of the rest slightly longer than its preceding; four inner spines thick, distinctly compressed laterally, with sharply attenuate feebly sinuate tips; first inner spine as long as the last of outer spines; three others a little longer; inner upper spur not much longer than the inner apical spine, slightly longer than a half of metatarsus, rather thick and compressed, feebly sinuate; lower inner spur only a little shorter than the upper one and subequal to inner apical spine; metatarsus thick; its upper inner margin rounded, while the upper outer margin is sharp and armed with four sharp spines; inner apical spur of metatarsus thick, compressed, subequal to one-half of second tarsal joint.

Black, slightly shining, entirely non-pubescent. Head and pronotum very finely rugulose. Mandibulae reddish-brown. Eyes and ocelli buff. Elytra dark-brown dorsally and black laterally. Hind femora reddish-brown at the base.

Length of body	20 mm.
Width of head	6, 5
" pronotum	6
Length of pronotum	45
" elytra	11, 5
" hind femur	9
" " tibia	6, 5
" metatarsus	3
" tarsus	5, 5

3 ♂♂ (type and two paratypes) taken at Susa, Persian Chaldea, 60 mt. above sea-level, by J. deMorgan's Expedition, 1904 (Paris Museum; one of paratypes in the British Museum).

This new species belongs to small representatives of the genus and is most nearly related to *A. amarensis*, Chopard, recently described from Mesopotamia but differs from it in the shape of head, clypeus and pronotum, in the more heavy armure of hind tibiae, as well as in relative dimensions of certain spines and spurs of the latter. In its habitus, *A. chaldea* reminds more of *A. campestris* L., while *A. amarensis* is a diminutive form of the type of *bimaculata*, De Geer.

63. *GRYLLUS TARTARUS* OBSCURUS Uvarov.*—Syria, Aleppo, iv-vii. 19, F. C. Aldous (British Museum).

64. *GRYLLUS DOMESTICUS* L.—Mohammerah, Persian Gulf, iii-iv. 17, R. C. Mabbs, 1 ♂ (British Museum).

65. *GRYLLUS DESERTUS* Pall.—Syria, Aleppo, F.C. Aldous (British Museum).

66. *GRYLLOALPA GRYLLOALPA* L.—Mesopotamia, Basrah, 27, v. 16, F. Wall (Bombay Society); River Karun, Mohammerah, Persian Gulf, iii-iv, 1917. R. C. Mabbs (British Museum).

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* Entom Month Magaz. 921, Vol. vii. p. 50.